



COLLEGE OF MEDICINE  
DEPT. OF OBSTETRICS AND GYNECOLOGY

# Benign Diseases of the Cervix

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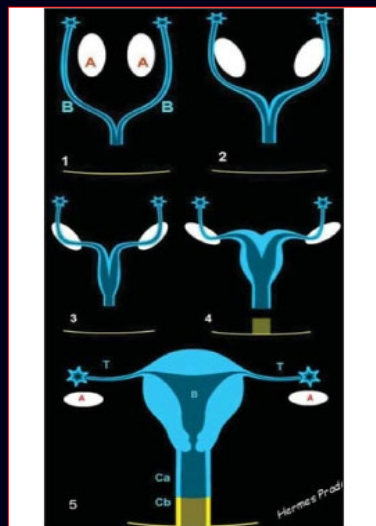
King Khalid University

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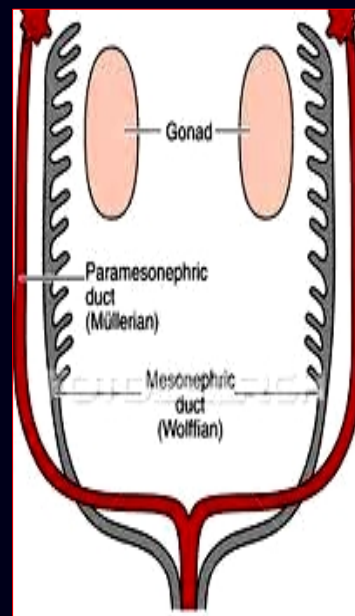
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## EMBRYOLOGY

- By 5 weeks' gestational age, the wolffian (mesonephric ) and müllerian (paramesonephric ) ducts have formed from intermediate mesoderm.
- In the absence of testosterone and müllerian inhibitory substance, the mesonephric ducts regress and the paramesonephric ducts continue to form the female reproductive structures.
- With fusion of the distal portions of the paramesonephric ducts give rise to the uterine fundus, the cervix, and the upper vagina.
- In a female fetus, the wolffian duct disappears except for nonfunctional vestiges.

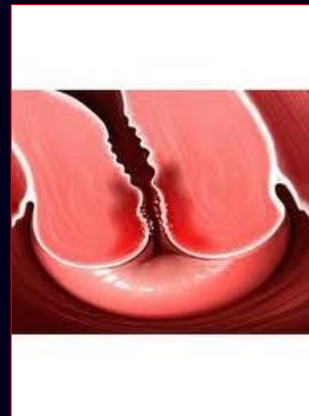
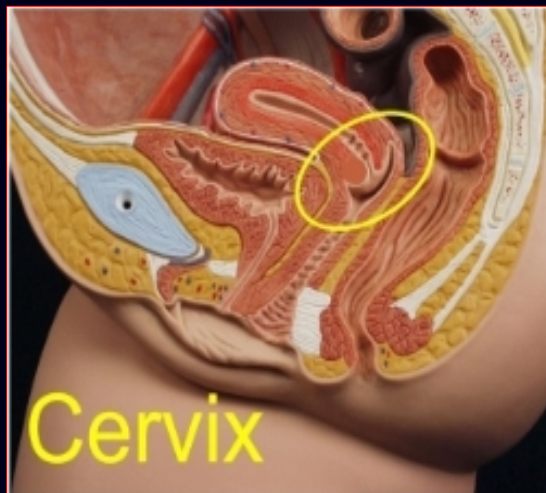


**Figure 1.** Scheme showing the embryological development and sequence (1 to 4) of Müllerian ducts fusion (B). (A) indicates the ovaries. Number 4 demonstrates the formation of the uterine body after fusion. 5B, uterine body; T, Fallopian tubes; Ca, proximal third of the vagina; Cb, distal third.



## GROSS ANATOMY

- The cervix measures 2.5-3 cm in diameter and 3-5 cm in length, it is angulated slightly downward and backward. Inferiorly, the cervix projects into the vagina as the portio vaginalis, the opening into the vagina (external os).
- The external os is usually small and round in nulliparous women but can be seen as a transverse slit in those who have had cervical dilation during labor.
- The anterior and posterior fornices delimit the portio (exocervix). The cervical canal measures 3 mm wide and contains longitudinal ridges. The opening of the cervical canal into the uterus is called the internal cervical os.
- The area between the endocervical and endometrial cavity is called the isthmus and forms lower segment.





The cervix of a woman who has not given birth (nulliparous)



The Cervix of a woman who has given birth (parous)

## VASCULAR SUPPLY

- The lymphatic drainage of the cervix is first to the parametrial nodes, then to the obturator, internal iliac, and external iliac nodes. Secondary drainage is to the presacral, common iliac, and para-aortic lymph nodes.
- The innervation of the cervix is from the Frankenhäuser plexus, a terminal part of the presacral plexus. The nerves enter the lower uterine segment and upper cervix on either sides
- The major blood supply is from the descending branch of the uterine artery. Also contributing is the cervical branch of the vaginal artery. The venous return mirrors the arterial blood supply

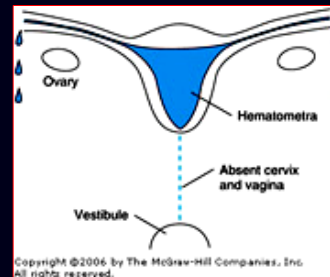
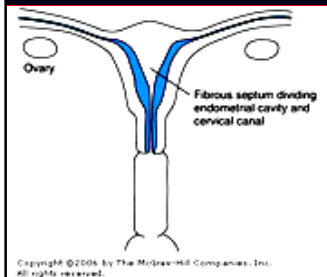
## MICROSCOPIC ANATOMY

- The cervical stroma is composed of an admixture of fibrous, muscular (15%), and elastic tissue.
- The vaginal portion of the cervix is covered by non-keratinizing stratified squamous epithelium becomes continuous with the vaginal epithelium.
- Glycogen stores respond to hormonal changes in estrogen and progesterone.
- The mucosa of the cervical canal (endocervix) is composed of a single layer of mucin-secreting columnar epithelium, with the underlying glandular crypts

## CONGENITAL ANOMALIES

- Congenital anomalies involving the cervix reflect only the lower part of the spectrum of congenital anomalies involving the müllerian system.
- The cervix has 3 types of anomalies: fusion abnormalities, congenital absence, and changes due to in utero exposure to diethylstilbestrol (DES) and other nonsteroidal estrogens.
- Müllerian congenital abnormalities are frequently associated with urinary tract anomalies because of associated mesometanephric duct developmental defects (25%).

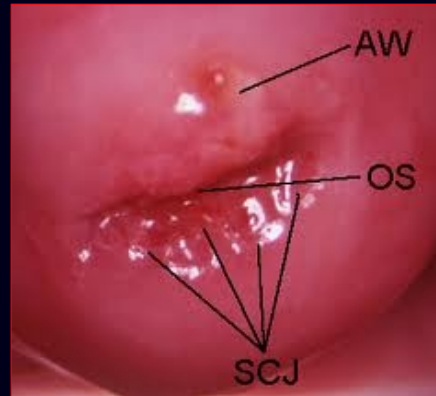
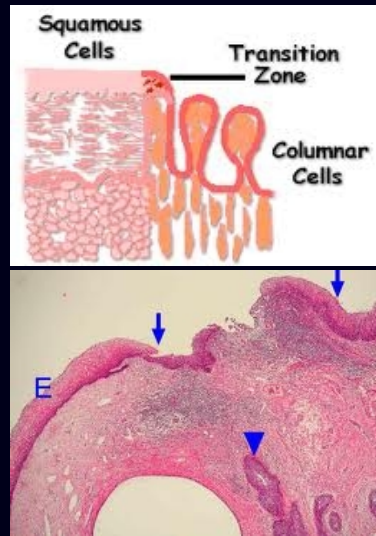
## CONGENITAL ANOMALIES cont.



## SQUAMOCOLUMNAR JUNCTION

- The squamocolumnar junction is the border between the squamous epithelium of the ectocervix and the columnar epithelium of the endocervix.
- Trauma, chronic irritation, and cervical infections play a role in the development and maturation of the squamous epithelium of the cervix.

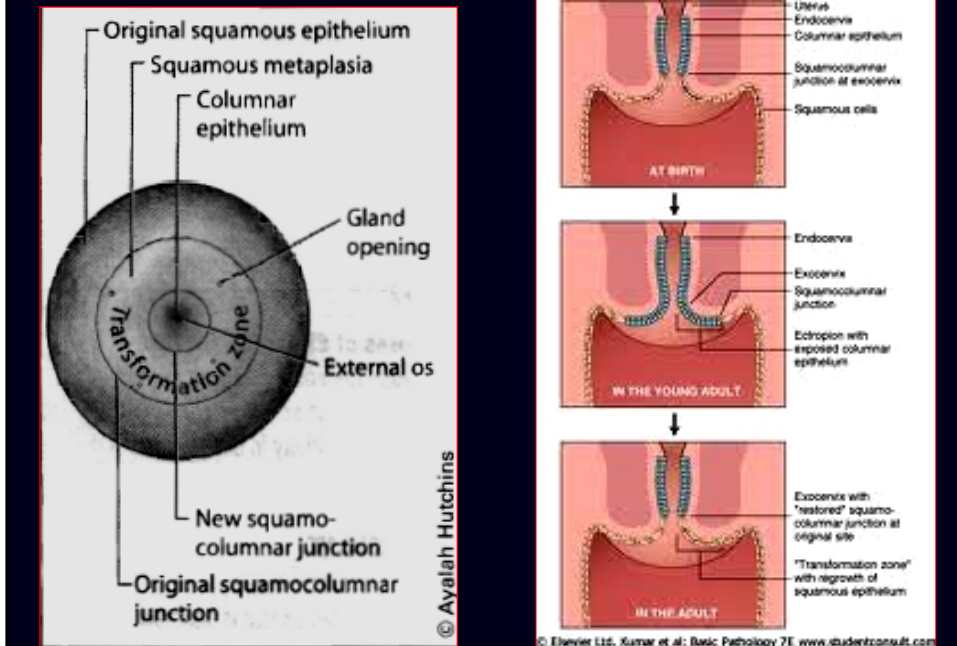
## SQUAMOCOLUMNAR JUNCTION cont.



## TRANSFORMATION ZONE

- The transformation zone is a dynamic area, on the ectocervix, by definition, is the area between the original squamocolumnar junction and the current squamocolumnar junction.
- The transformation zone originally was columnar epithelium and through a process of squamous metaplasia is now squamous epithelium.
- Squamous metaplasia occurs continuously; however, this related to Local hormonal changes, as reflected by vaginal pH, influence the process of ECTOPY /ECTROPION

## THE TRANSFORMATION ZONE (TZ) cont.



## THE TRANSFORMATION ZONE (TZ) cont.





-In postmenopausal women, the squamo-columnar junction frequently is located within the cervical canal.

-Colposcopic visualization of the squamo-columnar junction is frequently unsatisfactory because of the inability to visualize it.

-More than 80% of squamous cell cancers arise at the transformation zone (*Cancer bearing area*)



Figure 3. Cervical Squamocolumnar Junction (SCJ) and Transformation Zone



Figure Courtesy of Merck & Co., Inc.<sup>®</sup>

## BENIGN TUMOURS

- Endocervical polyps
- Leiomyoma,
- Microglandular hyperplasia,
- Squamous papilloma,
- Papillary adenofibroma

## Endocervical polyps

Commonly arise from endocervix

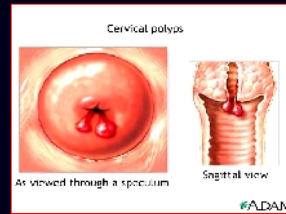
### 1- Mucous polyp

or inflammatory polyp

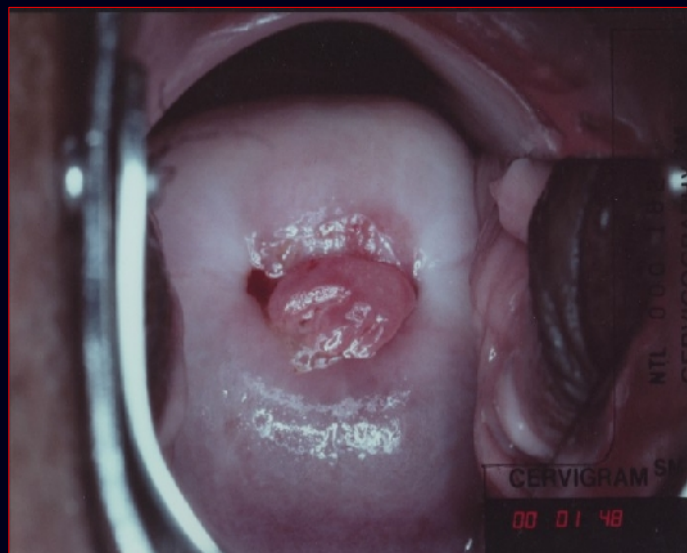
\*Symptoms: symptomless or contact bleeding.

\*Signs: smooth, red or purple, fingerlike projections from the cervical canal

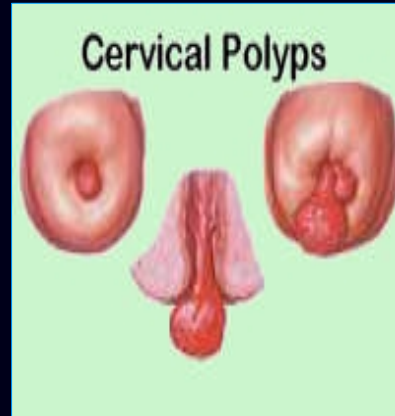
\*Treatment: Removal of the polyp and cauterization of base by electrocautery or with a laser.



## Mucous polyp



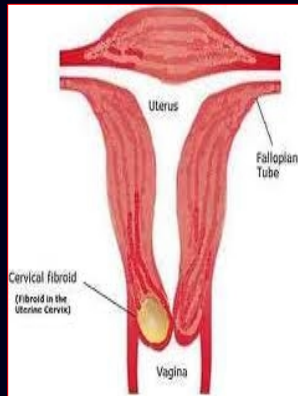
## Fibroid polyp



## Cervical Leiomyoma

- These benign neoplasms may originate in the cervix and 8% of all uterine smooth muscle tumors.
- They are similar to tumors in the fundus, in the cervix, they usually are small, ie, 5-10 mm in diameter.
- Symptoms depend on size and location.
- Microscopically, leiomyomas resemble the typical smooth muscle tumor found in the uterine corpus.
- Treatment is required only for those who are symptomatic.
- The cervical leiomyoma is usually part of the spectrum of uterine smooth muscle tumors

## Cervical Leiomyoma



Aet. 1) Infected laceration  
2) Gonococcal OR Chlamydial

## Infection of endocervix 1) Acute Cervicitis

Symptoms:

- 1- mucopurulent discharge
- 2- dyspareunia, pelvic pain
- 3- urinary symptoms

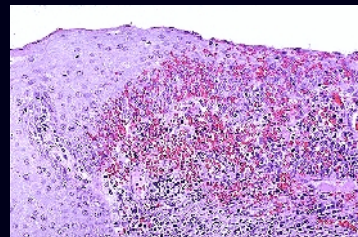
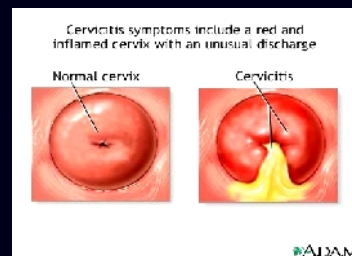
Signs:

- 1- red swollen cervix.
- 2- Purulent discharge
- 3- tenderness on moving cervix

Microscopic: Epithelial necrosis + neutrophilic infiltration

Treatment: antibiotics

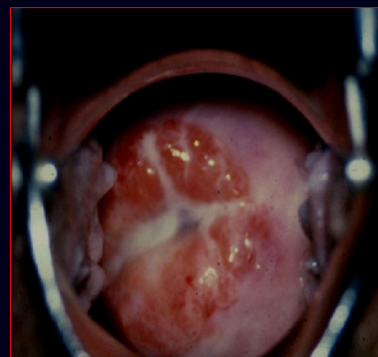
Complication: Chronic cervicitis, risk of PID



## 2) Chronic Cervicitis

- Chronic Cervicitis is most often a sequale of acute infection or starts as chronic infection .
- Cervicitis is very common, affecting more than half of all women at some point during their adult lives.
- Multiple sexual partners, and a history of sexually transmitted disease , cervical lacerations, increase a woman's risk of chronic cervicitis

## CHRONIC CEVICITIS



- Vaginal discharge ,yellow mucopurulent discharge

- Abnormal vaginal bleeding, contact bleeding

- Pelvic pressure or heaviness

- Dyspareunia, ● Pelvic pain,

- Urinary symptoms

Signs : A speculum examination reveals

- redness / discharge.

- Mucopolyps

- Chronic hypertrophic cervicitis

- Ectopy, Nabothian follicles

- patchy, reddening (trichomoniasis)

- white plaques (candidiasis;)



#### Tests:

- Tests for gonorrhea or Chlamydia may be positive.

- A wet mount insepection of the discharge may show candidaiasis, Trichomonas, or bacterial vaginosis.

- A Pap smear show evidence of inflammation or infection.

#### Treatment

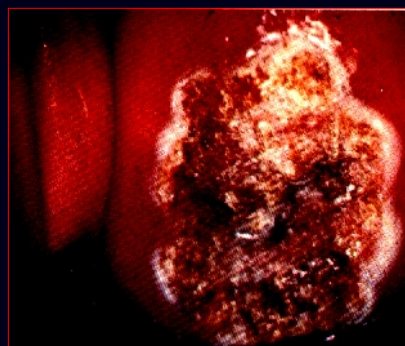
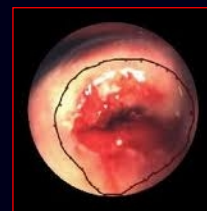
- Infections causes are treated with (antibiotics).

- Cryosurgery, electrocauterization, and laser therapy are treatment options that may be considered with recurrent or persistent chronic cervicitis

## Antibiotic Regimens

Diagnosis	Primary Treatment	Alternative Treatment
<i>C trachomatis</i>	Azithromycin PO or Doxycycline 100 mg bid for 7 d	Erythromycin base 500 mg PO qid for 7 d or Erythromycin ethylsuccinate 800 mg qid for 7 d
<i>N gonorrhoeae</i>	Cefixime 400 mg PO or Ceftriaxone 125 mg IM or Azithromycin PO or Doxycycline 100 mg bid for 7 d	Spectinomycin IM or Ceftizoxime 500 mg IM or Cefotaxime 500 mg IM or Cefotetan IM or Cefoxitin + probenecid PO
<i>T vaginalis</i>	Metronidazole or Metronidazole 500 mg bid for 7 d	

## CERVICAL ELECTROCAUTERY AND LASER ABLATION





## INFECTIONS INVOLVING THE PORTIO OF THE CERVIX (ECTOCERVIX)

- 1- The herpes virus (genital herpes) and human papilloma virus (genital warts) are two other STDs that can cause cervicitis.
- 2- Bacteria, such as staphylococcus, streptococcus,.
- 3- Trichomonas trichomonas
- 4- Tuberculous cervicitis
- 5- Treponema pallidum

## Human Papilloma Virus (HPV).

- The typical exophytic warts that present on the vulva, vagina, and cervix are type 6 or type 11.
- Types 16, 18, 31, 33, and 35 are more commonly associated with flat warts and linked to cervical intraepithelial neoplasia or CIN and then invasive carcinoma.
- Treatment by topical podophylline or destruction with LASER



## CERVICAL INFECTION WITH (HPV)



## PROPHYLAXIS OF HPV INFECTION

**Gardasil**<sup>®</sup> is a quadrivalent HPV recombinant vaccine containing activity against HPV types 6, 11, 16, and 18. The vaccine is indicated for prevention of HPV-associated dysplasias and neoplasias, including cervical cancer, genital warts. (FDA approval in September 2007).

**Cervarix**<sup>®</sup> is the second HPV vaccine and is also a recombinant formulation. This vaccine is designed to create immunity against the HPV subtypes 16 and 18, which cause 70% of cervical cancer. (FDA approval in September 2009).

## NON-INFECTIOUS CERVICITIS

- This includes chemical irritation (eg, deodorants, douching), local trauma from foreign bodies (eg, tampons, pessaries, IUDs), surgical intervention.
- Clinically, the cervix is swollen, erythematous, and friable, and is associated with postcoital bleeding. The epithelium may be ulcerated.
- Microscopically, marked inflammatory reaction with varying amounts of granulation tissue and stromal fibrosis.

## OTHER BENIGN CONDITIONS

I- Nabothian follicles

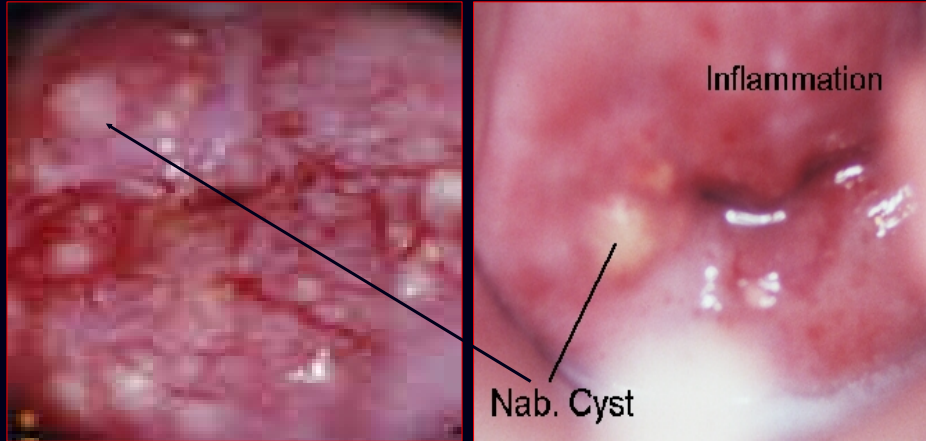
II- Cervical ectropion

II- Cervical laceration

III- Endometriosis

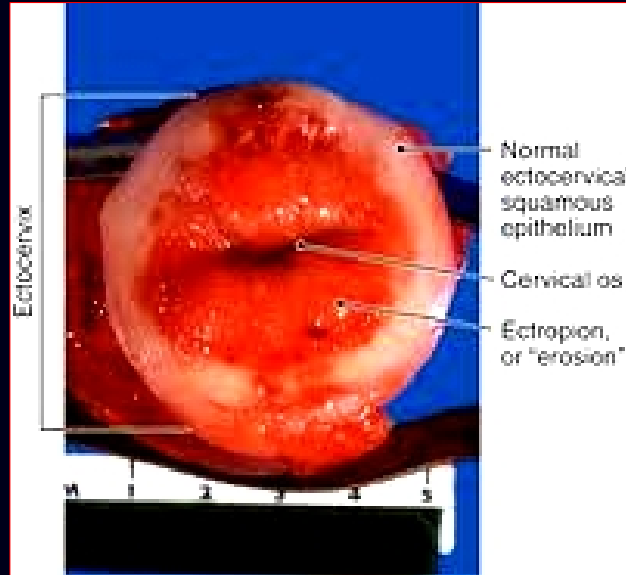
IV- Mesonephric duct remnants

## NABOTHIAN FOLLICLES



- Mucus filled cysts visible on the ectocervix
- Are of no pathological significance
- Sometimes may be up to 10 mm .
- Usually Need no treatment unless associated with chronic cervicitis can be cauterized

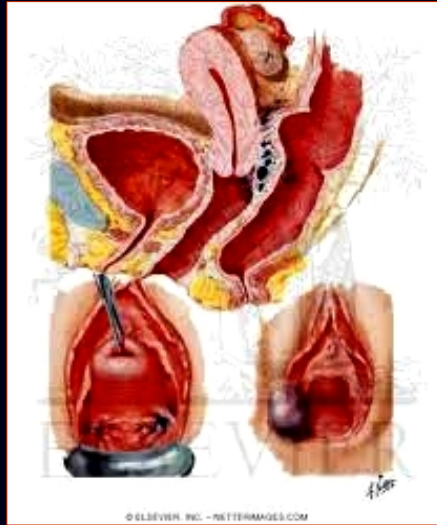
## CERVICAL ECTROPION



## CERVICAL ECTROPION

- Old Misnomer (Erosion)
- Pouting of the columnar epithelium into the vaginal portion
- In pregnancy or when the patient is on the pill
- Patient may complain of vaginal discharge
- Rule out infection
- Caution has no role in treatment **unless associated with infection**

## CERVICAL ENDOMETRIOSIS



## CERVICAL ENDOMETRIOSIS

- Uncommon sites include ectocervix, vagina and vulva. Typical appearance is bluish nodules.
- Pelvic examination reveals evidence of pelvic endometriosis (tenderness, nodularity, fixed RVF uterus.....)
- Histologic evaluation is necessary for diagnosis.

THANK YOU



**ABHA**